

**ADVANCED GCE****PHYSICAL EDUCATION****2566**

Exercise and Sport Physiology and the Integration of Knowledge of Principles and Concepts Across Different Areas of Physical Education

Candidates answer on the Answer Booklet

**OCR Supplied Materials:**

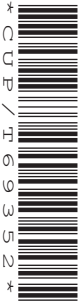
- 8 page Answer Booklet

**Other Materials Required:**

None

**Thursday 29 January 2009**  
**Morning**

**Duration: 1 hour 30 minutes**

**INSTRUCTIONS TO CANDIDATES**

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the spaces provided on the Answer Booklet.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- There are two sections in this paper.
- Answer the compulsory questions in Section A and **one** question from Section B.
- Do **not** write in the bar codes.

**INFORMATION FOR CANDIDATES**

- The number of marks is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this paper is **60**.
- You are advised to spend no longer than 30 minutes on Section A.
- There is a total of 45 marks available in Section B.
  - 26 marks will be available for knowledge content, 19 marks are available for your ability to critically analyse and link your knowledge across different areas of PE, making connections between them and practical performance. The quality of written communication will also be taken into account.
  - Your answer should be in continuous prose and you are advised to link the two parts of the question you have chosen.
  - You are advised to spend no longer than one hour on Section B.
- This document consists of **8** pages. Any blank pages are indicated.

### Section A

Answer the question in this section.

You are advised to spend no longer than 30 minutes on this section.

#### Exercise and Sport Physiology

- 1 (a) RhEPO/recombinant erythropoietin is a prohibited ergogenic aid.

Identify the missing information A, B and C.

[3]

Ergogenic Aid	RhEPO/recombinant erythropoietin
One performance enhancement effect	A
One associated health risk	B
One type of athlete that would benefit from its use	C

- (b) Agility is a useful fitness component for games players.

(i) Give a definition of agility and identify a test to evaluate it.

[2]

(ii) An average time for the completion of an agility test is 17 seconds for males and 19 seconds for females.

Identify the **two** predominant energy systems that would be used by an average performer during the completion of this test.

Discuss the advantages and disadvantages of **one** of the energy systems you have identified.

[6]

(iii) During an agility test, a performer relies on maximum strength and elastic/explosive strength.

Define maximum strength and elastic/explosive strength.

Explain when **and** why each type of strength would be used during the test.

[4]

[Total: 15 marks]

## Section B

Answer **one** question only, **either** Question 2 (Scientific Focus)  
or Question 3 (Socio-cultural Focus)

## Question 2 (Scientific Focus)

You must answer from both Part One **and** Part Two.

**Part One: answer either (a) or (b).**

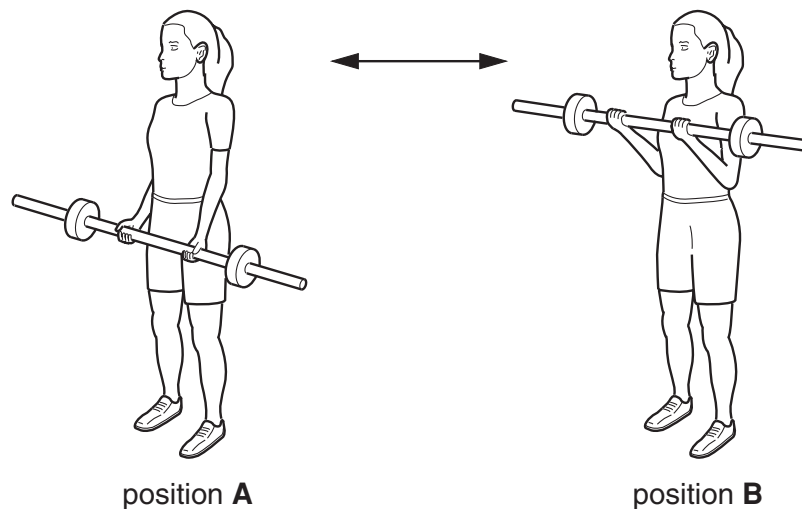
**Either**

**(a)** (Application of Anatomical and Physiological Knowledge to Improve Performance)

Fig. 1 shows a performer at two positions during a biceps curl.

upward phase = position **A** to position **B**

downward phase = position **B** to position **A**



**Fig. 1**

Identify the type of joint, the joint movement and the bones being used to move the bar from position A to position B. Use this joint movement to explain what is meant by the function of a muscle.

Explain the type of muscular contraction occurring in the biceps brachii during the upward phase and the downward phase of the biceps curl.

Identify the muscle fibre type that would allow the performer to carry out bicep curls using a low weight for a large number of repetitions. Explain how the structure and function of this fibre type is suited to prolonged exercise.

Or

**(b)** (Acquiring and Performing Movement Skills)

Acquiring movement skills is a process that involves separate stages or phases and depends on the learner understanding what is required, which is a cognitive process.

Identify and explain the **three phases** of learning movement skills.

The cognitive **theory** of learning is one way of explaining the process of learning movement skills.

Explain the cognitive theory of learning.

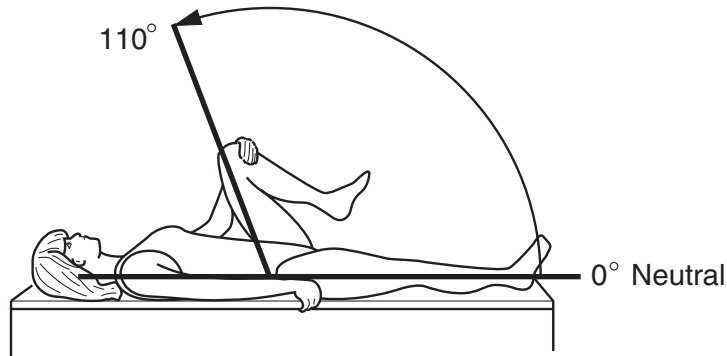
Whole practice is often used as a technique in learning movement skills. What are the benefits of whole practice?

**Part Two: answer either (c) or (d) or (e).**

**Either**

**(c) (Exercise and Sport Physiology)**

Fig. 2 shows the use of a goniometer to measure the range of movement at the hip joint.



**Fig. 2**

Describe another method that could be used to measure the flexibility of the hip joint and identify the factors that affect flexibility.

Proprioceptive neuromuscular facilitation (PNF) is a form of passive flexibility training. Identify what is meant by passive flexibility training and describe the method used in PNF stretching.

Explain why PNF flexibility training is effective.

What physiological changes will take place to skeletal muscle and connective tissue after a programme of PNF stretching?

**Or**

**(d) (Biomechanical Analysis of Human Movement)**

A state of constant velocity is often achieved by a variety of performers.

Sketch a free body diagram showing all the forces acting on a performer running with constant velocity and use Newton's Laws of Motion to explain how this state of motion is achieved.

Explain how a performer can manipulate the position of their centre of mass during take off and during flight to enhance their performance.

**Or**

**(e) (Psychology of Sport Performance)**

The effective management of anxiety and aggressive behaviour can optimise performance in sport.

Explain what is meant by state and trait anxiety.

What might be the causes of aggressive behaviour in sport?

Explain the use of anxiety management techniques to help a sports performer to control anxiety and aggressive behaviour.

**[Total: 45 marks]**

**Question 3 (Socio-cultural Focus)**

You must answer from Part One **and** Part Two.

**Part One****(a)** (Contemporary Studies in Physical Education)

Explain the various roles of a coach.

Other than by the provision of specialist coaching, explain how the participation of young disabled performers in physical recreation can be increased.

**Part Two: Answer either (b) or (c)****Either****(b)** (Historical Studies in Physical Education)

Identify characteristics of popular recreations in pre-industrial Britain and explain the cultural factors which influenced their development. Describe features of community festivals, fairs and wakes in pre-industrial Britain.

To what extent did **real** tennis show the characteristics of popular recreation?

**Or****(c)** (Comparative Studies in Physical Education)

One of the major professional sports in the USA is American Football (Grid Iron) but it is not a mass participation sport.

What features of Grid Iron Football limit mass participation in this sport?

Compare the UK with **either** France **or** Australia in terms of how mass participation is promoted. Your answer could include school and sporting organisations initiatives and government involvement.

**[Total: 45 marks]**





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